

**REMARKS**

The Final Office Action mailed July 7, 2009 and the references cited therein have been carefully considered. Claims 1-26 are now pending in the application, of which Claims 22 and 24-26 have been withdrawn from consideration.

The amendments to the claims presented herein, merely incorporate all the limitations of Claim 3 (which is also hereby cancelled) into independent Claim 1. Thus, no new matter or new issues are presented by the amendments herein. Accordingly, entry of these amendments and further consideration are respectfully requested.

Applicants respond to the issue raised in the subject Office Action more specifically below and respectfully requests reconsideration of the pending rejections.

**Claim Rejections under 35 USC § 102 and 35 USC § 103**

Claims 1-10, 12, 13, 15-19, 21 and 23 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Published Patent Application No. 2001/0043396 to **Lee**. Also, Claims 11, 14 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over **Lee** in view of U.S. Patent No. 6,157,487 to **Staub**. Applicants respectfully traverse these rejections as set forth more fully below.

In the subject Office Action, it is stated that Lee discloses that the phase displacement of the parameter variation function between the pattern region and the background region is selected in accordance with the contrast (citing Lee, paragraph [0099]). However, at paragraph

[0099], Lee merely states that “*the diffractive action of the background elements 1 is modulated by the interstitial elements 2, with differing interstitial element configuration 3, 4 in differing parts of the surface relief structure producing differing diffraction effects in corresponding parts of the diffraction image*”. Thus, a different arrangement of the interstitial elements in different parts of the surface relief structure generates the different diffractive effects in the corresponding parts of the diffraction image. It can not reasonably be said that varying the modulation of a pattern (i.e., the interstitial elements 2) is the same as selecting a phase displacement of the parameter variation function between the pattern region and the background region in accordance with a contrast to be set. It should be noted that Lee makes no reference to a contrast and does not disclose any different contrasts between the embodiments disclosed therein. Also, Lee does not suggest a phase displacement of a parameter variation function or a relationship between a phase displacement and a contrast.

Also, Lee does not disclose a phase displacement of a parameter variation function between a pattern region and a background region. As recited in Claim 1, “the relief structure in the surface region are varied periodically in accordance with a periodic parameter variation function. One example of such a function disclosed in the specification, including the drawings, is a sine function, which appears as waves. Thus, where the subject claims recite that there is a phase displacement in the parameter variation function, this mean a phase displacement of the periodic function defining, for example, such a wavy pattern. The subject Office Action notes at the bottom of page 6 that a phase displacement is interpreted by the Office Action as being

“similar to the displacement shown in current Fig. 6b, which shows a peak exists in the overall grating pattern and the adjacent displacement shows a valley where the peak would be expected to continue absent the displacement.” However, the mere fact that the wave patterns turn from black to white and visa-versa, as shown in Lee Figs. 6a and 6b, does not mean a parameter variation function is phase displaced. In Lee, the function defining the patterns continues in the same phase between the background and pattern regions, i.e., the waves continue to run parallel to one another across the entire surface. Figures 5a and 5b of Lee show that the interstitial elements and the background elements are in phase with respect to each other, i.e. they show the same wave form at the same place (Lee, paragraph [0018], “...with interstitial element ridge or groove segments being approximately parallel to ridge or groove segments in adjacent background elements.”). There is no phase displacement at the border between the pattern region and the background region. In contrast, Claim 1 recites that there is a phase displacement of the periodic parameter variation function between two regions defining the relief structure.

What is more, one of ordinary skill in the art would find no reason to periodically vary the diffractive structures taught by Lee, both in the pattern regions and in the background regions (“tracks”) in accordance with periodic parameter variation functions which differ by a phase displacement, whereby the period of the periodic parameter variation functions lies within a range between 20  $\mu\text{m}$  and 300  $\mu\text{m}$ . In particular, the interstitial “doping” of a continuous background structural element pattern by a multiplicity of structural interstitial elements serves another purpose, as is an aspect of the instant disclosed technologies and more specifically

recited in Claim 1. The structure as recited in Claim 1 provides a shape for at least two different spatially separated surface regions, namely a pattern region and a background region. This is done by means of an identical parameter variation function. The parameter variation function in the pattern region being phase-displaced with respect to the parameter variation function in the background region. In contrast thereto, the teaching of Lee is aimed at generating different diffractive images within the area of the substrate surface which are only visible at special viewing angles or under different illumination conditions (see Lee, paragraph [0001]). The diffractive structures that create an optical security element as taught by Lee, would lead one of ordinary skill in the art to provide not only a few but rather manifold variations between the diffractive images being visible from different viewing angles (see e.g. ,the exemplary embodiments shown in Fig. 14 of Lee). Taking into account the exemplary embodiments, a person skilled in the art would be led to combine a number of completely different parameter variation functions in neighboring areas. Thus, the disclosure of Lee teaches away from the subject-matter as currently recited in the claims, and particularly independent Claim 1.

Accordingly, Lee fails to teach or reasonably disclose all the elements of the claimed invention. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 1-10, 12, 13, 15-19, 21 and 23 under 35 U.S.C. §102(b) based on Lee.

Further, as more fully discussed in Applicants' previous Responses, although Staub discloses more specific line densities, the Staub patent fails to teach or reasonably disclose the further elements of the claimed invention not disclosed by Lee, as addressed above with regard

to the §102 rejection. Consequently, a person of ordinary skill in the art combining Lee and Staub would not arrive at the present invention as recited in the claims, and particularly independent Claim 1.

Accordingly, Applicants hereby respectfully request reconsideration and withdrawal of the current rejections of the claims under 35 U.S.C. §103(a) as being unpatentable over Lee in view of Staub.

### **Conclusion**

Applicants submit that the claims, particularly independent claim 1, are clearly distinguishable from the cited prior art references. Also, claims 2, 4-21 and 23, which ultimately depend from Claim 1, are similarly patentable over the art of record by virtue of their dependence. Also, Applicants submit that Claims 2, 4-21 and 23 define patentable subject matter in their own right. In view of the foregoing remarks, Applicants respectfully request reconsideration and allowance of the claims presented.

**Application Serial No. 10/562,330**  
**Docket No. 1093-145 PCT/US**  
**Response to July 7, 2009**  
**Final Office Action**

If the Examiner has any questions or suggestions to expedite allowance of this application, she is cordially invited to contact Applicants' attorney at the telephone number provided.

Respectfully submitted,

/tony a. gayoso/

Tony A. Gayoso

Registration No.: 37,331

Attorney for Applicants

HOFFMANN & BARON, LLP  
6900 Jericho Turnpike  
Syosset, New York 11791-4407  
(516) 822-3550

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